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EXAMINER

PALABRICA, RICARDO J

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 09/748,691
Filing Date: December 26, 2000
Appellant(s): SWARTZ, MITCHELL R.

July 26, 2011

EXAMINER'S ANSWER

This is in response to the appeal brief filed 2/3/04 appealing from the Office
action mailed 2/3/03.

(1) Real Party in Interest

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

(2) Related Appeals and Interferences

The following are the related appeals, interferences, and judicial proceedings known to the examiner which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal:

- *In re Swartz* No. 00-1108, 56 USPQ2d 1703 (decided November 2000) – Swartz patent application S/N 07/760,970.
- *In re Swartz* No. 00-1107, (decided November 2000) – Swartz patent application S/N 07/371,937.
- Appeal 2009-001853, decide November 2010 - Swartz patent application 10/646,143.

(3) Status of Claims

The following is a list of claims that are rejected and pending in the application:

Claims 1, 5-8, 10-14, and 21-30.

(4) Status of Amendments After Final

The amendments to the claims, which appellant lists in Appendix B of the Brief, were not entered because they were submitted after final. The claims listed in Appendix A, which were rejected in the 2/3/03 final Office action, are addressed in this Examiner's Answer, as per the 7/22/10 decision by the Acting Associate Commissioner for Patent Examination Policy on the 4/17/06 petition by the appellant.

The examiner notes that the withdrawal of the rejections of claims 5 and 22, which appellant cites, pertains ONLY to the rejection under 35 U.S.C. 112, second paragraph, and not to their rejection under the other statutes.

(5) Summary of Claimed Subject Matter

The examiner has no comment on the summary of claimed subject matter contained in the brief.

(6) Grounds of Rejection to be Reviewed on Appeal

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

(7) Claims Appendix

The examiner has no comment on the copy of the appealed claims contained in Appendix A to the appellant's brief.

(8) Evidence Relied Upon

5,215,631	WESTFALL	06-1993
3,682,806	KINSELLA	07-1970
WO 93/01601	CEDZYNSKA ET AL.	01-1993
WO 90/15416	EDWARDS	12-1990
WO 91/06959	SADOWAY	05-1991
NL8909-962-A	VAN NOORDEN	12-1989

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- D. Braaten, 'Ridiculously' easy test yields energy triumph, The Washington Times, 3/24/89, p. A5.
D. Stipp, Georgis Group Outlines Errors That Led To Withdrawal of 'Cold Fusion' Claims, The Wall Street Journal, p. B4.
Browne, 'Fusion' Claim is Greeted with Scorn by Physicists, The New York Times, p. A1 and A2.
Kreysa et al., A critical analysis of electrochemical nuclear fusion experiments, Journal of Electroanalytical Chemistry, Vol. 266, p. 437-450.
Lewis et al., Searches for low-temperature nuclear fusion of deuterium in palladium, Nature, Vol. 340, p. 525-530.
P. J. Hilts, Significant Errors Reported in Utah Fusion Experiments, The Washington Post, p. A1 and A7.
G. Horanyi, Some Basic Electrochemistry and the Cold Fusion of Deuterium, Journal of Radioanalytical Nuclear Chemistry, Letters, Vol. 137, No. 1, p. 23-28.
Ohashi et al., Decoding of Thermal Data in Fleishmann & Pons Paper, Journal of Science and Technology, Vol. 26, No. 7, p. 729-732.
Miskelly et al., Analysis of the Published Calorimetric Evidence for Electrochemical Fusion of Deuterium in Palladium, Science, Vol. 246, No. 4931, p. 793-796.
G. Chapline, Cold Confusion, UCRL-101583, p. 1-9.
J. Cooke, Report of Travel of J.F. Cooke, Head, Solid State Theory Section, Solid State Division, ORNL/FTR-3341, p. 2-15.
Alber et al., Search for Neutrons from 'Cold Nuclear Fusion', Zeitschrift fur Physik A Atomic Nuclei
Faller et al., Investigation of Cold ?Fusion in Heavy Water, Journal of Radioanalytical Nuclear Chemistry, Letters, Vol. 137, No. 1, p. 9-16.
Cribier et al., Conventional Sources of Fast Neutrons in "Cold Fusion" Experiments. Physics Letters B, Vol. 228, No. 1, p. 163-166.
Haidas et al., Search for Cold Fusion Events, Solid State Communications, Vol. 72, No. 4, p. 309-313.
Shani et al., Evidence For A Background Neutron Enhanced Fusion In Deuterium Absorbed Palladium, Solid State Communications, Vol. 72, No. 1, p. 53-57.
Ziegler et al., electrochemical Experiments in Cold Nuclear Fusion, Physical Review Letters, Vol. 62, No. 25, p. 2929-2932.
Price et al., Search for Energetic Charged Particle Emission from Deuterated Ti and Pd Foil, Physical Review Letters, Vol. 63, No. 18, p. 1926-1929.
Schreider et al., Search for cold nuclear fusion in palladium-deuteride, Zeitschrift fur Physik B – Condensed Matter, Vol. 76, No. 2, p. 141-142.
Salamon et al., Limits on the emission of neutrons, gamma rays, electrons and protons from Pons/Fleischmann electrolytic cells, Nature, Vol. 344, p. 401-405.

(9) Grounds of Rejection

(Examiner's note to the Board: Appellant himself admits that the instant application is a continuation of his earlier, parent application, S/N 07/760,970 [see page 11 of the 11/07/02 Amendment]. The claims of this parent application were rejected for lack of operability under 35 U.S.C. 101 and lack of enablement under 35 U.S.C. 112, first paragraph, by another examiner. Appellant then filed an appeal to the Board of Patent Appeals and Interferences, which affirmed the rejections. Appellant then appealed the Board decision to the Court of Appeals for the Federal Circuit which, in its 00-108 judgment, confirmed the lack of operability and lack of enablement of S/N 07/760,970.)

The following ground(s) of rejection are applicable to the appealed claims:

Specification

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the appellant regards as his invention.

9.1 The specification is objected to under 35 U.S.C. 112, first paragraph, as failing to provide an adequate written description and as failing to adequately teach how to make and/or use the invention, i.e., failing to provide an enabling disclosure.

The specification contains references throughout to the production of “desired reactions” with the isotopic fuel (e.g., deuterium) upon full charging of the cathode with deuterons and the application of the second applied electric field.

The specification on page 2 identifies these “desired reactions” as electrochemically-induced, nuclear fusion reactions in metals (such as deuterium-loaded palladium). Hence, the only possible “products” that can be formed in the disclosed and claimed method are nuclear fusion products. Indeed, such is even attested to by appellant’s parent application, S/N 07/760,970, as well as the two applications referred to on page 2 of the appellant’s specification.

Additionally, the specification on page 3, lines 1 and 2, and on page 7, top paragraph, refers to the generation of energy, specifically heat energy, by the desired

reactions of the isotopic fuel (e.g., deuterium) in the loaded cathode metals. Said heat energy is being directed out via heat pipes and thermal bus.⁹

As set forth more fully below, the disclosure does not contain reputable evidence that is sufficient to support any allegations or claims that the invention produces “nuclear reactions” by “cold fusion”, that any allegations or claims of the production of cold fusion are valid and reproducible, nor that the invention as disclosed is capable of operating as indicated and capable of providing the intended output.

This concept of producing nuclear reactions by “cold fusion” was, in general, publicly announced by Fleischmann and Pons (hereinafter referred to as “F and P”) on March 23, 1989 (see 3/24/89 article by D. Braaten). Appellant’s invention is, at most, no more than a variation of the cold fusion concept or system set forth by F and P.

As set forth more fully below, this “cold fusion” concept of producing nuclear reactions is still no more than just an unproven concept.

Subsequent to the announcement of this cold fusion concept by F and P, many laboratories have attempted to confirm the results of F and P.

The results of these attempts at confirmation were primarily negative and, even of the few initial positive results, these were generally either retracted or shown to be in error by subsequent experimenters (e.g., see the article by Stipp in the Wall Street Journal and the article by Browne in The New York Times (particularly page A22)).

The general consensus by those skilled in the art and working at these various laboratories is that the assertions by F and P were based on experimental errors (e.g.,

see The New York Times article by Browne, Kreysa et al., Lewis et al., Hilts, Horanyi, Ohashi et al., Miskelly et al. and Chapline).

Note for example, that Kreysa et al. on page 440 state that, "We have repeated the heat balance measurements more than 10 times and never found a significant heat excess within the accuracy limits of $\pm 5\%$." Kreysa et al. also refer to various possible sources of error that could lead to erroneous conclusion that nuclear reactions and excess heat were produced.

Hilts states that the MIT experiments failed to produce any of the excess heat reported by the Utah group.

Lewis et al. state in the summary on page 525 that they found no evidence of excess enthalpy in their experiments and, they refer to various possible sources of error which could lead to the erroneous conclusion that nuclear reactions and excess heat were produced (note pages 528-530).

Both Hilts and Lewis et al. indicate that in any determination of excess heat, one must determine the total amount of energy produced (as heat and chemical energy) integrated over the whole period of cell operation, versus the total energy input.

It was also the general consensus by those skilled in the art and working at these various laboratories that there is no reputable evidence of neutron, gamma ray, tritium or helium production to support the allegation or claim that nuclear reactions are taking place, nor is there any reputable evidence to support the allegation or claim of excess heat production. See for example (in addition to the above listed references) page A14 of the 7/13/89 edition of The Washington Post, Cooke, Alber et al., Faller et al, Cribier et

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al., Haidas et al., Shani et al., Ziegler et al., Price et al., Schrieder et al., and pages A3 of the 3/29/90 edition of The Washington Post).

Of particular interest is page A3 of the 3/29/90 edition of The Washington Post that refers to the negative findings of a physicist who had tested Pon's own cold fusion apparatus for nuclear output (for a more complete analysis of said "negative findings", note the article by Salamon et al.). Also of interest in this respect is the Cooke reference that, on pages 4 and 5, refers to the attempts at Harwell to obtain "cold fusion" and that Fleischmann (of F and P) had requested help from Harwell in verifying the cold fusion claims. Said page 5 also indicates that data was collected in Frascati-type (i.e. gaseous) experiments. The last paragraph on said page 5 states:

"After three months of around-the-clock work at a cost of over a half million dollars, the project was terminated on June 15. This program is believed to be one of the most comprehensive worldwide with as many as 30 cells operating at a time and over 100 different experiments performed. The final result of this monumental effort in the words of the official press release was, "In none of these experiments was there any evidence of fusion taking place under electrochemical conditions". It should also be added that there was no evidence of excess heat generated by any of their cells." (Underlining added).

Appellant's specification contains assumptions and speculations as how and in what manner his invention will operate. However, appellant has presented no reputable factual evidence to support his assumptions and speculations regarding a reproducible, sustainable cold fusion and low temperature transmutation reactions.

Note in this respect that the examiner (as set forth above) has presented documentary evidence that there are no operative cold fusion systems that actually produce nuclear reaction products. The disclosure is thus insufficient and non-enabling as to exactly what all is necessary to actually present a reproducible, sustainable cold

fusion and low temperature nuclear reaction, and, as to what would cause such reactions to actually take place in appellant's system.

On page 5, lines 4-6 of the specification, the appellant discloses a not shown power supply and control unit consisting of a current source and reactor control device. However, there is neither an adequate description of the elements that form said power supply and control unit nor enabling disclosure of how and in what manner the elements are interconnected for the claimed invention. Also, there is neither an adequate description nor enabling disclosure of how and in what manner these elements function as one, integrated system to achieve the objectives of the claimed invention

On page 5, lines 6-8 of the specification, the appellant discloses a not shown power source that "creates an applied electric field intensity which produces cation flow towards the cathode." However, there is neither an adequate description nor enabling disclosure of how and in what manner the not shown power supply so produce the said cation flow.

On page 5, lines 9-10 of the specification, the appellant states that "there is a build-up of deuterons and a low dielectric constant in the near cathode solution." However, there is neither an adequate description nor enabling disclosure of how and in what manner the deuteron build-up and low dielectric constant are achieved. The disclosure is also insufficient as to what actually is low dielectric constant.

On page 5, line 11 of the specification, the appellant states that "there may be spikes or on the cathode (*sic*)." However, there is neither an adequate description of what constitutes a "spike" nor enabling disclosure of how and in what manner this spike was produced and what effect, if any, does the spike have on the performance or integrity of the system.

On page 5, lines 13-15 of the specification, the appellant discloses that the first

electric field is applied to “charge the palladium with deuterons,” However, there is neither an adequate description nor enabling disclosure of how and in what manner such charging is achieved.

On page 5, lines 15-16, the appellant further states that the “second electric field intensity is delivered after full charging has been achieved.” However, there is neither an adequate description nor enabling disclosure of how and in what manner one would determine whether full charging” has been achieved - by calculation, measurement or both? The disclosure is insufficient as to exactly what concentration of isotopic fuel in the metal represents “full charging” (this term is undefined). Note that this deficiency of the disclosure with respect to the requisite concentration of isotopic fuel in the cathode, applies to each of the appellant’s fuels of an isotope of hydrogen, boron, lithium and potassium.

On page 6, lines 5-6, the appellant discloses that the “deuteron-impenetrable barrier(s) act to enhance the desired reactions.” However, there is neither an adequate description of what constitutes a “desired reaction” and, where applicable, how does this differ from an “undesired reaction.” Also, there is neither an adequate description nor enabling disclosure of how and in what manner said desired reactions would be enhanced by the barriers that are impenetrable to deuterons.

On the corrected paragraph replacing the 2nd paragraph on page 6, the appellant states “these devices contain a cathode (labeled 1), intradevice gel containing lithium and palladium deuterioxide (labeled 6), and anode (labeled 7) (*sic*).” However, there is neither an adequate description nor enabling disclosure of how and in what manner these elements function individually and, as a complete unit, to achieve the object(s) of the claimed invention.

On the corrected paragraph replacing the 3rd paragraph on page 6, the appellant

discloses that the CAM devices are held in place by “clips”. However, there is neither an adequate description of these clips nor enabling disclosure of how and in what manner said clips so hold said devices. On the same paragraph, the appellant further discloses connection of the CAM device to a microprocessor control system. However, there is neither an adequate description nor enabling disclosure of how and in what manner said microprocessor is so connected to the device. Additionally, there is neither an adequate description nor enabling disclosure of how and in what manner said microprocessor so provides control, e.g., what parameters are controlled, what ranges of values are acceptable, etc.

On the corrected paragraph replacing the 2nd paragraph on page 7, the appellant discloses that the purpose of the receptor apparatus is first to integrate the three (or more) CAM reactor units.” However, the terms “receptor apparatus” and “integrate” are vague and undefined. Also, there is neither an adequate description nor enabling disclosure of how and in what manner such integration is so achieved. In the same paragraph, the appellant discloses “separating the cathodic buses” after loading the cathode. There is neither an adequate description nor enabling disclosure of how and in what manner this separation is so achieved.

Appellant’s claimed method of low temperature electrolytic nuclear reactions is practiced on an apparatus of non-cold fusion art (e.g. Westfall [U.S. 5,215,631] or Kinsella et al. [U.S. 3,682,806]) that is identical to the appellant’s, and, these apparatuses are all-operated in an identical manner, i.e., the application of orthogonal electric fields.

Note that it is well-settled case law that identical apparatuses operated in the same manner, must produce identical results.

There is accordingly, neither an adequate description nor enabling disclosure of

how and in what manner, appellant's invention is able to produce low temperature electrolytic nuclear reactions and excess heat whereas, the identical systems and methods of operation in either Westfall or Kinsella et al., presumably did not produce said low temperature electrolytic nuclear reactions and excess heat.

Assuming for the sake of argument that appellant's invention does function in a different manner to produce a different result from that of either Westfall or Kinsella et al., it can only be because appellant's invention actually contains some additional critical feature(s), component(s), etc., not found in any of said references which is/are necessary to enable appellant's invention to function differently from any of said references so as to be able to produce a different result.

Accordingly, the disclosure is insufficient in failing to disclose said additional critical feature(s), component(s), etc., necessary to cause appellant's invention to operatively function in a different manner to produce a result different from that of said references.

There is neither an adequate description nor enabling disclosure of how and in what manner, one can control the production of a product merely by: supplying said isotopic fuel to said material, loading said isotopic fuel into said material, and applying in combination two non-parallel applied electric fields (e.g., see claim 1).

There is neither an adequate description nor enabling disclosure of how and in what manner, one can control the production of a product merely by: supplying an isotopic fuel to said material, loading said isotopic fuel into said material by an applied electric field, and applying the second electric field to redistribute said isotopic fuel (e.g., see claim 10).

There is neither an adequate description nor enabling disclosure of the purpose of the application of the magnetic field, nor of how and in what manner the applied

magnetic field intensity is caused to be inhomogeneous (as in claims 8 and 13).

Clearly, when an artisan or experimenter is relying on the experimental results of particular tests or experiments to establish certain facts, i.e., the production of excess heat and of low temperature nuclear reactions, it is incumbent upon the experimenter to show that the alleged experimental results of excess heat and low temperature nuclear reactions, are valid and not just the results of experimental errors or misinterpretations of experimental data (and that the alleged experimental results do not fall within the limits of experimental errors).

There is thus no reputable evidence of record to support the assumption and speculation that the invention would actually operate as indicated and produce the desired results as indicated.

It is not seen where in the specification discloses any particular structure, etc., which is unique to the appellant's system and which would make the appellant's cold fusion system operative whereas the systems disclosed in the above referenced numerous teachings by skilled artisans were not operative.

There is neither an adequate description nor enabling disclosure of the parameters of a specific operative embodiment of the invention, including atomic or weight ratio of metal electrodes to electrolyte (e.g. palladium to gel), dimensional ratio of electrodes to their spacing (i.e., sizes of anode and cathode relative to the space between them), voltage and current requirements to produce the orthogonal electric fields and the magnetic field, surface area-to-volume requirement for the reactor, minimum concentration of the isotopic fuel in the cathode necessary for the desired reactions to take place, the exact composition (including impurities and amounts thereof) of the electrolyte and of the cathode and of the anode, etc. These impurities can have an adverse effect on the desired operation of the invention.

It is apparent from the specification that appellants' concept or theory involves a "cold fusion" system based on the "cold fusion" systems that came about from the work of F and P, is workable or operative, only if these systems are already operative.

However, as set forth above, the examiner has presented evidence showing that in such cold fusion systems, the claims of excess heat (as well as of other nuclear reaction products), are not reproducible or even obtainable. It consequently must follow that the claims of excess heat or nuclear reactions are not reproducible or even obtainable with appellant's invention. While appellant may have set forth theoretical concepts, it is well known in the cold fusion field that theory and reality have a habit of not coinciding. There is no evidence to indicate that the appellant has so succeeded where others have failed, in arriving at an operative cold fusion system, i.e. that he has progressed his system beyond the point of an unproven theory or concept which still requires an undue amount of experimentation to enable the artisan to make and use the inventive system for its indicated purpose. This view is also considered supported by the failure to set forth a full example of the specific parameters of an operative embodiment. One cannot rely on the skill in the art for the selection of the proper quantitative values to present an operative cold fusion system, since those in the art do not know what would be these values. See Bank v. Rauland Corp., 64 U.S.P.Q. 93; In re Cornell et al., 145 U.S.P.Q. 697.

To reiterate briefly, the examiner has presented evidence that neither the situation of excess "heat" nor of other, nuclear reaction products, can reasonably be expected to be reproducible or even obtainable with the present invention.

There is no reputable evidence of record that would overcome the experimental showings in the above listed references, disproving this concept of "cold fusion".

Again, there is no evidence to indicate that the appellant has so succeeded where others have failed, in arriving at an operative system that produces nuclear fusion, i.e., that he has progressed his system beyond the point of an unproven theory or concept which still requires an undue amount of experimentation to enable the artisan to make and use the invention for its indicated purpose.

It is thus considered that the examiner (for the reasons set forth above) has set forth a reasonable and sufficient basis for challenging the adequacy of the disclosure. The statute requires the appellant itself to inform, not to direct others to find out for themselves; In re Gardner et al., 166 U.S.P.Q. 138, In re Scarborough, 182 U.S.P.Q. 298. Note that the disclosure must enable a person skilled in the art to practice the invention without having to design structure not shown to be readily available in the art; In re Hirsch, 131 U.S.P.Q. 198.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

9.2 Claims 1, 5-8, 10-14 and 21-30 are rejected under 35 U.S.C. 101 because the claimed invention as disclosed is inoperative and therefore lacks utility.

The reasons that the inventions as disclosed is inoperative are the same as the reasons set forth in section 9.1 above and the reasons set forth in section 9.1 above are accordingly incorporated herein.

There is no reputable evidence of record to indicate the invention has been reduced to the point of providing in current available form, an operative cold fusion

system. The invention is not considered as meeting the requirements of 35 U.S.C. 101 as being "useful". Note in this respect, Page A14 of the 7/13/89 edition of The Washington Post which indicates that there is no convincing evidence that the "phenomena attributed to cold fusion would produce useful sources of energy".

The appellant, at best, has set forth what may be considered a concept or an object of scientific research. However, it has been held that such does not present a utility within the meaning of 35 U.S.C. 101. See Brenner v. Manson, 148 U.S.P.Q. 689.

Additionally, it is well established that whereas here, the utility of the claimed invention is based upon allegations that border on the incredible or allegations that would not be readily accepted by a substantial portion of the scientific community, sufficient substantiating evidence of operability must be submitted by appellant. Note In re Houghton, 167 U.S.P.Q. 687 (CCPA 1970); In re Ferens, 163 U.S.P.Q. 609 (CCPA 1969); Puharich v. Brenner, 162 U.S.P.Q. 136 (CA DC 1969); In re Pottier, 152 U.S.P.Q. 407 (CCPA 1967); In re Ruskin, 148 U.S.P.Q. 221 (CCPA 1966); In re Citron, 139 U.S.P.Q. 516 (CCPA 1963); and In re Novak, 134 U.S.P.Q. 335 (CCPA 1962). Also, based on the above-cited Federal Appeals Court decision and appellant's own admission that the instant application is a continuation of S/N 07/371,937, the instant application lacks utility.

Claim Rejections - 35 USC § 112

9.3 Claims 1, 5-8, 10-14 and 21-30 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains

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subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The reasons that the invention as disclosed are not enabling are the same as the reasons set forth in section 9.1 above as to why the specification is objected to, and said reasons are accordingly incorporated herein.

Also, based on the above-cited Federal Appeals Court decision and appellant's own admission that the instant application is a continuation of S/N 07/371,937, the instant application lacks enablement just as said parent application.

9.4 Claims 1, 5-8, 10-14 and 21-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which appellant regards as the invention.

The claims are vague, indefinite and incomplete.

As to claims 1 and 5-8, the preamble of claim 1 discloses a process for producing a product using a material loaded with an isotopic fuel. This implies that the process is applied to a material that already contains isotopic fuel. However, the body of the claim discloses supplying and loading said isotopic fuel into the material. These claims are vague, indefinite and incomplete as to whether the process supplies and loads additional isotopic fuel to the material that already contains isotopic fuel, i.e., does the claim imply multiple loading of fuel? The claim preambles are directed to a process for producing a product, however, the bodies of the independent claims fail to recite a

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specific step of producing said product, as well as a specific step of controlling said product, and, the claims are hence vague, indefinite and incomplete. See also MPEP 2172.01.

The claims are also vague, indefinite and incomplete as to what is actually the product.

As indicated in sections 9.5 and 9.6 below, either one of Westfall or Kinsella et al. illustrate an electrolytic process that is identical to that recited in said appellant's claims. Appellant's disclosure indicates that his process results in the generation of heat energy because his apparatus is claimed to have a thermal bus connected to heat pipes (e.g. see corrected 4th paragraph on page 6). This implies that the thermal bus-heat pipe combination extracts heat generated by the appellant's apparatus. Neither Westfall nor Kinsella et al. specifically disclose the generation of low temperature nuclear reactions and the generation of sufficient heat energy such as to require removal thereof. Assuming for the sake of argument that Westfall's or Kinsella et al's system is not capable of producing such nuclear reactions and heat energy, appellant's claims are incomplete in failing to recite the additional critical structure and/or method steps (not found in Westfall or Kinsella et al.) that are actually necessary to produce appellant's indicated heat energy and nuclear reactions.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9.5 Claims 1, 5-8, 10-14 and 21-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Westfall (U.S. 5,215,631).

Westfall discloses a process for growing crystals by electrodeposition. He teaches that his invention has use in growing palladium, titanium and other metal crystals for “cold fusion” electrodes (e.g., see column 1, lines 36+, column 2, lines 37+, and column 3, lines 32+). His method uses the electrolytic apparatus shown in Fig. 1 comprising a bath (4) between a working electrode 8 (where the crystal growth occurs) and a counter electrode (which replenishes the electrolytic solution’s concentration of ions of the to-be-deposited material. The bath is used by passing current between the working and counter electrodes (e.g. see column 4, lines 25+). Westfall further discloses that palladium can be deposited from the more common aqueous systems (see column 7, lines 25+). Table 1 lists metals that can be grown from an aqueous solution, including palladium, and the more common anion and cation components. He teaches that hydrogen is generated in an aqueous system (e.g. see column 9, lines 32+).

Westfall further discloses the use of orthogonal electric fields as part of the nucleation manipulation techniques for crystal growth control. He states that orthogonal electric fields are generated by the use of “conformal” counter electrodes with configurations such as wire-tubular, sphere-spherical, cube-cubical torus-toroidal, etc. (see column 24, lines 11+).

Westfall also discloses conformal electric fields may be used in combination with

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one or more nucleation manipulation techniques, such as magnetic fields (see column 24, lines 55+).

Note that appellant's claimed "isotopic fuel" reads on the hydrogen generated by Westfall's aqueous solution and his "material" reads on Westfall's "working electrode."

Note also that the limitation of claim 10 regarding the electric fields and their sequential application read on Westfall's aqueous electrochemical process. The electric field resulting from application of a voltage between the working electrode and counter electrode, which reads on appellant's "first electric field", primarily causes the movement of ions (including hydrogen ions) from the bath to the working electrode. This process reads on appellant's "loading isotopic fuel to the material." Westfall also discloses that the orthogonal fields, which result from a conformal counter electrode configuration, provide control of nucleation (see column 24, lines 1+). He further discloses that nucleation controls growth of crystals (e.g., see column 5, lines 1+). Conformal electric fields result in near uniform intensities and near uniform ion diffusion distances promoting superior deposition system stability (e.g., see column 24, lines 30+). Therefore, the orthogonal field resulting from a conformal counter electrode configuration and its beneficial effect on crystal formation read, respectively, on appellant's "second electric field" and its effect of "redistribution of the fuel within the material." Clearly, the first electric field must first effect movement of ions from the electrolytic bath towards the working electrode before the orthogonal electric field can effect control of distribution of these ions to form the desired crystal growth.

Note further that claims 8 and 13 are anticipated by Westfall's method that

provides for application of magnetic field, in addition to electric fields (e.g. see column 24, lines 59+). As to the specific limitation in claim 8 regarding an “inhomogeneous magnetic field,” any applied magnetic field will have “inhomogeneity” because of inherent imperfections in the material (e.g., non-uniform crystal structure) or the source of the magnetic field (e.g., if an a.c. electrical source produces the magnetic field, any voltage fluctuations, which inherently always occur, will cause inhomogeneity in the magnetic field. Appellant’s claim language reads on such.

As to claim 14, note that the Westfall’s working electrode can either be a cathode or an anode (see column 4, lines 26 and 27).

9.6 Claims 1, 10 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Kinsella et al.(U.S. 3,682,806). Kinsella et al. disclose a process for electroplating metallic articles with carboxylic film-forming materials utilizing lithium hydroxide as solubilizer (see Fig. 1 and column 8, 2nd paragraph). Fig. 1 shows the anode (4), which is the material to be coated, a stainless steel cathode (6). An alternative embodiment can have an auxiliary platinum anode (7) and an auxiliary stainless steel cathode (8). The electrodeposition current flows from the anode (4) to the stainless steel cathode (6). An auxiliary direct current (referred to as “regeneration current”) is applied between the auxiliary electrodes, the direction of the current being orthogonal to the direction of the electrodeposition current (see column 9, lines 65+). Note that appellant’s “isotopic fuel” in the claim language reads on the lithium anions that form on the anode, “material” reads on “anode”, and “orthogonal electric fields” reads on the orthogonal fields produced by the electrodeposition current and the regeneration current.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9.7 Claims 1, 5-7, 10-12, 14 and 21-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over either one of Cedzynska et al. (WO 93/01 601) or Edwards (WO 90/15416) in view of Westfall. Either one of Cedzynska et al. or Edwards et al. disclose the appellant's claims except for the orthogonal electric fields.

Cedzynska et al. disclose a method for electrolytically loading isotopic hydrogen into a palladium or palladium alloy electrode by alternately charging and discharging the electrode in a plurality of cycles, each cycle including charging of the electrode with isotopic hydrogen approximately to a saturation level and then discharging the electrode to a predetermined retention level see Abstract, page 9 and Fig. 1).

Edwards discloses a method for production of thermal energy comprising passing an electric current through electrodes immersed in a liquid electrolyte containing a higher isotope of a low atomic weight atom and applying a magnetic influence to the electrolyte or one or each electrode. The electrolyte may contain lithium

and the electrode can be palladium or titanium (see Figs. 1 and 2, and claims).

As discussed in section 9.5 above, Westfall discloses an electrodeposition process using orthogonal electric fields.

One having ordinary skill in the art would have recognized that the method and apparatus of Cedzynska et al. or Edwards are similar to that of Westfall, in terms of having an electrochemical means of depositing a light element such as hydrogen into a metal such as palladium. He would have also recognized that application of orthogonal electric fields is advantageous because it provides better control of the process.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method, as disclosed by either one Cedzynska et al. or Edwards, by the teaching of Westfall, in order to obtain a method of producing and controlling the production of a product using a material loaded with an isotopic fuel, comprising: a) supplying said isotopic fuel to said material; b) loading said isotopic fuel into said; and c) applying sequentially two orthogonal electric fields, to gain the advantages thereof, because such modification is no more than the use of conventional techniques within the nuclear art.

9.8. Claims 8 and 13 rejected under 35 U.S.C. 103(a) as being unpatentable over Cedzynska et al. in view of Westfall, as applied to claims 1-7, 10-12, 14 and 21-30 above, and further in view of anyone of Edwards, Sadoway (WO 91/06959) or Van Noorden (NL 8909-962-A) or Dufour (WO 91/01036). The combination of Cedzynska et al. and Westfall discloses the appellant's claims except for the use of magnetic fields in

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fusion.

Anyone of the cited secondary references cites the application of a magnetic field as part of a claimed electrolysis-nuclear fusion process. See for example page 2 of Westfall, abstract and claims of Sadoway, abstract of Van Noorden, and page 8 of Dufour. One having ordinary skill in the art would have recognized the claimed advantage of applying a magnetic field to enhance a purported nuclear fusion process.

As to the limitations regarding creating a gradient in the intensity of magnetic field and having an inhomogeneous magnetic field, any magnetic field applied across any material will inherently produce a gradient in the intensity of said field within the material. As to the inhomogeneity of said field, as stated in section 9, any applied magnetic field will have “inhomogeneity” because of inherent imperfections in the material (e.g., non-uniform crystal structure) or the source of the magnetic field (e.g., if an a.c. electrical source produces the magnetic field, any voltage fluctuations, which inherently always occur, will cause inhomogeneity in the magnetic field. Appellant's claim language reads on such.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the Cedzynska et al. – Westfall combination, by the teaching of anyone of Edwards, Sadoway, Van Noorden or Dufour to have the magnetic field, in addition to the orthogonal electric fields, in order to gain the advantages thereof, as this is more than the application of well-known techniques within the nuclear art.

(10) Response to Argument

10.1 35 U.S.C. 112, first paragraph rejection

Appellant traversed the lack of written description and lack of enablement of the claimed invention (see pages 11-61 of the Brief). Appellant essentially argues that:

- a) the references applied by the examiner in the rejection are different from his claimed invention;
- b) appellant's peer-reviewed publications prove enablement;
- c) skilled-in-the art support the appellant;
- d) literature supports the appellant;
- e) technical issues support the appellant;

The examiner disagrees.

First, in order to comply with the enablement requirement of the first paragraph of 35 U.S.C. 112, a disclosure must adequately present the claimed invention so that an artisan could practice it without undue experimentation. In determining whether any disclosure would require undue experimentation to make and use claimed subject matter, consideration must be given to such factors as the predictability or unpredictability of the art in question, the relative skill of those in the art, the state of the prior art, the nature of the invention, the presence or absence of working examples, the amount of direction or guidance presented, and the quantity of experimentation necessary (*In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988)).

With respect to each of the above considerations, the references cited by the examiner would lead to the conclusion that undue experimentation would be required to perform the processes in the manner claimed. Although the skill of those in the art may

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be considered relatively high, the numerous contemporary publications cited by the examiner clearly shows that the art in question is highly unpredictable. Also, the nature of the invention involves an incredible utility while the present specification neither presents working examples nor specific direction or guidance as to how to achieve the desired results. Indeed, the specification contains no disclosure of any operative embodiment or any of the specific parameters necessary, including atomic or weight ratio of electrodes to electrolyte, voltage and current requirements for the orthogonal fields. Moreover, the figures describing the apparatus used in this process are mere schematics!

As to argument a), it appears that appellant is stating that the cold fusion references cited by the examiner do not apply to his invention.

First, the instant application is directed to the generation of excess heat by reactions of the isotopic fuel in the loaded cathode metals. This generation of excess heat has been known in the art as "cold fusion." Therefore, the references applied by the examiner are in the same field of endeavor as appellant's case and therefore relevant to his invention.

Second, as stated in section 9 above, appellant himself admits that instant application is a continuation of his parent application, S/N 07,760,970, which is directed to methods and systems to control cold nuclear fusion. Thus, the product of the claimed invention must be the same as the product of "cold fusion" in the parent case. The Court of Appeals for the Federal Circuit, in its 00-108 judgment, confirmed the lack of

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operability and lack of enablement of S/N 07/760,970. Therefore, this application also lacks operability and lacks enablement since it is a continuation of the parent case.

As to argument b), the publications appellant relies upon are his own, self-authored articles and cannot be considered as coming from an unbiased source. It is obvious that appellant would not present any article he has written that does not support his arguments. Also, the articles relied upon by the appellant on pages 18-20 of the Brief have no probative value because they are not of record since they were submitted after final and were refused entry. Even if these articles were of record (which they are not) they are dated after the filing date of the parent application to which the instant application is a continuation. These references cannot cure the insufficiency of the disclosure of the parent application and, by extension, that of the instant application.

As to argument c), the declarations that appellant relies upon are irrelevant because are not part of the record of prosecution of the instant application. Even if they are of record (which they are not), they still have not probative value because: a) they have been considered in the prosecution of rejected parent application (e.g., 4/22/94 Strauss; 3/24/00 Eugene Mallove); or b) they pertain to a different application (e.g., 2/21/01 Hal Fox and 2/21/01 Talbot Chubb that are directed to S/N 07/371,937); or c) they are not from disinterested parties (e.g. Swartz).

As to arguments d) and e), the articles that appellant relies upon are not of record and therefore have no probative value because they were submitted after final and were refused entry. Even if they were of record (which they are not), they still have not probative value because appellant failed to identify how each reference specifically

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relates to the claimed invention. For example, on page 22 of the Brief, appellant cites the report of Miles “linking the formation of helium-4 to excess heat.” However, appellant does not show how his claimed apparatus is identical to that of the Miles apparatus, including the claimed first electric field, second electric field, and the inhomogeneous magnetic field. Also, nowhere in appellant’s specification is there a mention of helium-4 being generated by his claimed process.

10.2 35 U.S.C. 112, second paragraph rejection

Appellant traversed the rejection of claims for indefiniteness by essentially repeating his arguments on the rejection for lack of enablement (see pages 62-22 of the Brief). These arguments fail to address the issues raised by the examiner regarding: a) lacking specific step for producing the “product” and a step of controlling said product; and b) additional critical structure and/or method steps (not found in the applied art Westfall or Kinsella et al.) that are actually necessary to produce appellant’s heat energy and nuclear reactions.

10.3 35 U.S.C. 102 rejection

Appellant traversed applied art, Westfall, on the grounds that (see pages 72-82 of the Brief):

- a) the application was filed prior to Westfall;
- b) Westfall does not disclose loading;
- c) Westfall does not have the following features: means to control the

distribution, means including barriers impenetrable to flow of isotopic fuel, three separate connections for the applied field intensities; cathode divided into parallel slabs; second electric field directed through pairs of barriers and electrode to enhance the desired reactions; corn-shaped impermeable barriers;

d) Westfall requires other components that are not needed in the claimed invention;

e) Westfall's applied field is synchronous whereas the fields in the claimed invention are metasynchronous;

f) hydrogen is formed outside the electrode in Westfall and not inside;

g) Westfall does not produce heat unlike the claimed invention;

h) Westfall does not have alternate deuteron-impermeable barriers.

The Examiner disagrees for the following reasons:

a) Westfall (U.S. 5,215,631) is a continuation-in-part of S/N 514,192, April 25, 1990, which is more than one year prior to the claimed filing date of 9/17/91 for the parent application, S/N 07/760,970.

b) Westfall discloses palladium as working electrode and the electrolyte is an aqueous solution that inherently contains some deuterium. Palladium is known in the art to absorb (or "load") deuterium. Appellant himself admits to this well-known, scientific fact by his claims.

c) The features cited by the appellant are non-limiting because they are not recited in the claims. Note that although claims are interpreted in light of the

specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

- d) See item c) above.
- e) See discussion on claim 21 in section 9 above.
- f) See item b) above.
- g) The limitation regarding heat is not disclosed in the claims. See also item c) above. Nonetheless, Westfall's process inherently produces heat, e.g., joule heating.
- h) As to the limitation in the claims regarding an alternating barrier to the isotopic fuel, palladium is known in the art to contain gold as an impurity. Gold is a hydrogen isotope barrier as the appellant himself admits (see claims in the parent application). Therefore, when the palladium coating is formed on the working electrode, inherently gold will also be deposited. Operation of the Westfall's apparatus and process will inherently also produce alternate coatings of material containing the barrier gold.

Appellant traversed applied art, Kinsella, on the grounds that (see pages 83-89 of the Brief):

- a) Kinsella uses stainless steel cathode;
- b) Kinsella does not disclose loading;
- c) Kinsella requires other components that are not needed in the claimed invention;
- d) Kinsella does not disclose application of the second applied electric field

intensity after full charging has been achieved;

- e) Kinsella delivers the charging current into the bath instead of the cathode.

The Examiner disagrees for the following reasons:

- a) stainless steel contains nickel, and nickel or its alloys is disclosed by the appellant as acceptable material (see claim 6).

- b) Nickel is known in the art to absorb deuterium. Appellant himself admits to this well-known, scientific fact by his claims.

- c) The features cited by the Appellant are non-limiting because they are not recited in the claims. Note that although claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

- d) "Full charging" is not a limitation recited in the claims. All of the claims recite the term "loading" not "full charging." See item c) above

- e) Claims do not recite how the charging current is to be delivered. See item c) above.

As to the issue of alternating barriers and thereby clauses, see discussion of this matter in Westfall above.

10.4 35 U.S.C. 103 rejection

Appellant's traverse of the combination of Edwards, Sadoway, Van Noorden or Dufour with Westfall are not convincing because it has been well settled that one cannot show nonobviousness by attacking references individually where the rejections are

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based on the combination of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ (Fed. Cir. 1986).

As to Cedzynska or Sadoway, either one qualifies as prior art because either one is known and published before the appellant's parent application.

10.5 35 U.S.C. 101 rejection

Appellant argues that his claimed invention has utility because of the "submitted declarations and accompanying exhibits", and because the art cited by the examiner does not apply to the invention (see pages 111-120 of the Brief).

The examiner disagrees.

The examiner has demonstrated in section 10.1 above that the claimed invention fails to meet the enablement requirement because a person skilled in the art cannot practice the invention without undue experimentation. Since the invention is not enabled, the claims in the application also fail to meet the utility requirement under 35 U.S.C. 101. *In re Swartz*, 232 F.3d 862 (Fed. Cir. 2000).

The examiner has held that the utility of the claimed invention is based upon allegations that border on the incredible or on allegations that would not be readily accepted by a substantial portion of the scientific community (see section 9.2 above). Appellant's claimed process lacks utility because it has not been shown that they do what appellant claims it does, i.e., produce a product using a material loaded with an isotopic fuel and control the production of this product. Appellant's specification contains no data to show that the disclosed apparatus functions to achieve "cold fusion" or how the claimed process is able to produce the claimed product, much less control its

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production. Appellant has presented no objective evidence that cold fusion has been reproducibly achieved by anyone, much less successfully controlled the product of cold fusion as claimed by him.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Rick Palabrica/

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